

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Fort Worth, Texas 76193-0100

* * * * *
In matter of the petition of *
*
ROBINSON HELICOPTER COMPANY *
* Regulatory Docket No. 012SW
for an exemption from § 27.695 *
of Title 14, Code of Federal *
Regulations (CFR) *
*
* * * * *

GRANT OF EXEMPTION

By letter dated March 14, 1997, Frank D. Robinson, Robinson Helicopter Company, 2901 Airport Drive, Torrance, California 90505, petitioned for an exemption from 14 CFR 27.695 (§ 27.695), to the extent necessary to permit the type certification of the Robinson Helicopter Company Model R44 without considering the jamming of a control valve in the powered flight control system as a possible single failure. The Model R44 was certificated with a manual control system under Type Certificate H11NM.

The petitioner requests relief from the following regulations:

Section 27.695 prescribes, in pertinent part, that when a power boost or power operated control system is used, an alternate system should be immediately available, such that the rotorcraft can be flown and landed safely in the event of any single failure in the power portion of the system.

The petitioner supports its request with the following information:

The petitioner states that installing hydraulic controls will eliminate feedback loads for reduced pilot fatigue. The Model R44 hydraulic actuator design is based on that used on the Bell Model 206 helicopters. The Model 206 was chosen for the proven reliability, the safety of the

irreversible (lock and load) feature when hydraulic pressure is lost, and the cost effectiveness of the design.

The safety of the proposed actuator design has been proven during many years of service on the Bell Model 47 and 206 helicopters. Exemption No. 595 granted to Bell in 1966 noted that 1,500,000 hours of satisfactory service had accumulated at that time. Additionally, a review of National Transportation Safety Board accident data from January 1982 through December 1995 shows no accidents as a result of a jammed hydraulic control valve on Bell Helicopter Models 47, 206A, and 206B.

The petitioner states that public interest is served by keeping costs down while maintaining a high level of reliability. Granting this exemption will allow use of a well-proven actuator design without requiring a more complex system with higher acquisition and maintenance costs.

A summary of this petition was published in the Federal Register (62 FR 20240) on April 25, 1997, and no comments were received.

The FAA's analysis/summary is as follows:

The FAA has reviewed the data presented by Robinson Helicopter Company in support of this petition and has determined that a grant of the requested exemption is appropriate and justified.

The FAA is aware of the similarity between the Bell Model 206 hydraulic actuator design and that proposed for the Robinson Helicopter Company Model R44 and the improvements made to the Model R44 design to reduce the possibility of jamming.

The petitioner has also provided data comparing the installation of the actuator in the Model R44 to the installation in the Model 206. The differences between the two installations favor the Model R44 in terms of safety and reliability.

In consideration of the foregoing, I find that a grant of exemption would be in the public interest and would not have an adverse effect on safety. Therefore, pursuant to the authority

contained in 49 U.S.C. §§ 40113 and 44701, formerly §§ 313(a) and 601(c) of the Federal Aviation Act of 1958, as amended, delegated to me by the Administrator (14 CFR § 11.53), Robinson Helicopter Company, is hereby granted an exemption from § 27.695 to the extent necessary to allow Robinson Helicopter Company to install hydraulically boosted controls on the Model R44 without the necessity of considering the jamming of a control valve as a possible single failure.

Issued in Fort Worth, Texas, on October 17, 1997.

A handwritten signature in black ink, appearing to read "Eric Bries". The signature is fluid and cursive, with the first name "Eric" and last name "Bries" clearly distinguishable.

Eric Bries
Acting Manager, Rotorcraft Directorate
Aircraft Certification Service